LANTERN SHOWMEN AND EARLY FILM

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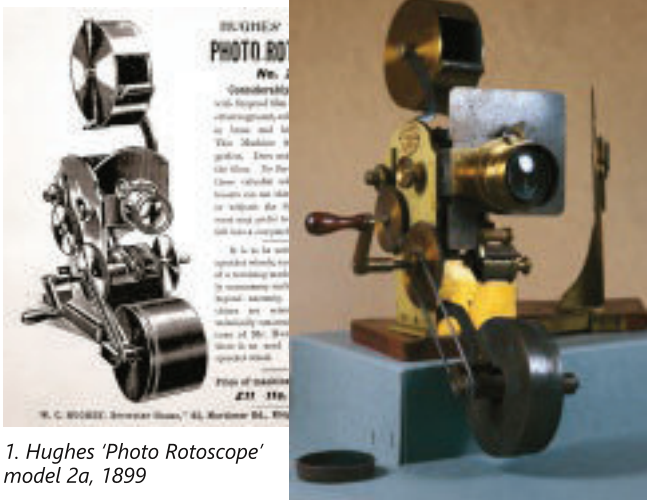


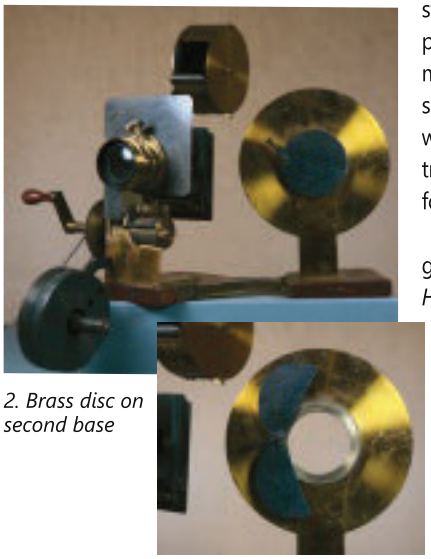
1. Hughes 'Photo Rotoscope' model 2a, 1899

I have a puzzling piece of lantern equipment (Fig.1). Two mechanisms of brass and steel, standing on mahogany bases, are joined together by a pivoting brass bar. One of them is a film projector with a 'beater' movement, which can be identified as a version of the 'Photo Rotoscope' model 2a, introduced by the lantern manufacturer W.C. Hughes in 1899.[1] The second base carries a large brass disc on a support, with a 2¼-inch hole in the centre that can be closed with a neat, two-bladed steel shutter (Fig.2).

The mahogany bases have felt underneath and each has a vertical hole at the end furthest away from the mechanism. The whole set-up was found in Wales with a reel of nitrate film dating from late 1899, showing scenes from the Boer War, and seems original, unaltered and virtually complete. But what was it made for, and what problem does it solve? The answer takes us back to the very first years of film exhibition in Britain.

The first film seen in Britain was exhibited in London in October 1894, in Thomas Edison's 'Kinetoscope', a one-person peep-show with a small electric bulb beneath the celluloid film. This device inspired a year of intense experimentation into how this film might be projected, and the first of the new film projectors, using lantern lamphouses and screens originally designed for lantern slides, reached London audiences in February 1896.[2] Lanternists had been struggling for years to perfect the illusion of natural movement in their shows but the harsh truth was that this new medium of film needed only two things from the magic lantern: its light source and its audience.

The lantern audience, with the 'lantern season' running from October to March, was already well established. The 25-year-old Cecil Hepworth, who formed his own film production company in 1899, recalled that orders quickly came in from "lecturers and the successors of the lantern-slide lecturers, who visited the mechanics' institutes throughout the country."[3] In these venues, one lanternist soon noted "secretaries and managers … are chary in arranging for a lecture or show unless it is to be spiced up or flavoured with living pictures".[4] But bringing film to the lantern audience was difficult and expensive. The first film projectors showed only film, so to add a few minutes of moving pictures to their show a lanternist had to invest in an entirely new piece of projection equipment costing £15–£20, with extra for a separate lamphouse, light source and gas supply, plus a stock of films and the increased costs of transport. The obvious solution lay in combined film and slide projectors. The Wrench 'Cinematograph', announced in July 1896, was attached to the front of an ordinary magic lantern lamphouse but slotted into runners so it could be 'lifted away' and a lantern objective substituted in order to show slides "during the intervals while a new film is being put in position."[5] This was important because, as one writer explained: "The placing of a fresh film in the instrument is rather trying work when an audience is waiting impatiently, and it is desirable to have an auxiliary lantern ready for the projection of ordinary slides with which to fill the time."[6]



2. Brass disc on second base

Lanternists found all sorts of ways of taking film to their audiences. In December 1897 Cecil Hepworth gave a very well-received mixed show to an audience in Finchley using a single magic lantern. As the *Hendon and Finchley Times* noted:

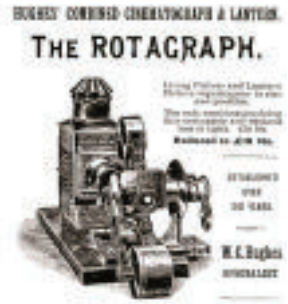
"Mr Hepworth has hit upon the happy idea of combining the 'living' photographs with still pictures, for those of you who have watched the cinematograph for any length of time will know how irksome the vibrations of the pictures are to the eyes; but as given by Mr Hepworth this is not noticed on account of the interludes of ordinary lantern slides. The lecturer had a varied set of pictures. Starting with some pictures taken off Deal, he showed several depicting the brewing of a storm, and then calling the cinematograph into use, threw on to the screen a realistic scene of waves breaking upon the rocks."[7]

Hepworth called this part of his show 'The Storm' and recalled that it consisted of "half a dozen slides and one forty-foot film", accompanied by a commentary and suitably dramatic music.[8] To achieve this effect he adapted his single magic lantern by buying a projector head from Jacob Bonn, an electrician in Holborn who was designing and manufacturing film equipment, and mounting it side-by-side with the lantern objective on a pivoted board in front of the lamphouse. By capping one lens, swinging the board around and uncapping the other lens, he could make a smooth transition between slides and films, using the same limelight source.[9] For the moving-picture sections he purchased "half a dozen forty-foot films out of [Robert] Paul's junk basket for five bob apiece"[10] including the year-old film *A Sea Cave near Lisbon*, with which he closed 'The Storm.'[11]

3. Hughes 'Photo Rotoscope' with interchangeable lantern lens[12]

Manufacturers were soon offering similar combined machines. For the 1898 lantern season W.C. Hughes offered his own 'Photo Rotoscope' projector (Fig.3), capable of being "attached to any lantern" and with an interchangeable lantern lens.[13] A second model, which followed in October 1900,[14] was marketed as 'The Rotagraph Combined Lantern and Cinematograph' (Fig.4) or, more impressively when later adapted to carry a thousand feet of film, 'The Imperial Rotagraph'.[15] Hughes advertised his 'Rotagraph' as offering "perfect alternating pictures", in which the slides appeared on the screen the same size as the film image and not "twice the size" as with rival machines.[16] Hughes continued to improve this projector and eventually offered a perfected model called the 'Moto-Photoscope' (Fig.5).[17]

The illustrations of the 'Rotagraph' and 'Moto Photoscope' (Figs 4 and 5) provide some explanation for my puzzling mechanism. Here the projector head is also mounted on a wooden base, anchored at the back by a vertical bolt and wing-nut. A flat brass bar connects this to a second wooden base, anchored by another bolt,



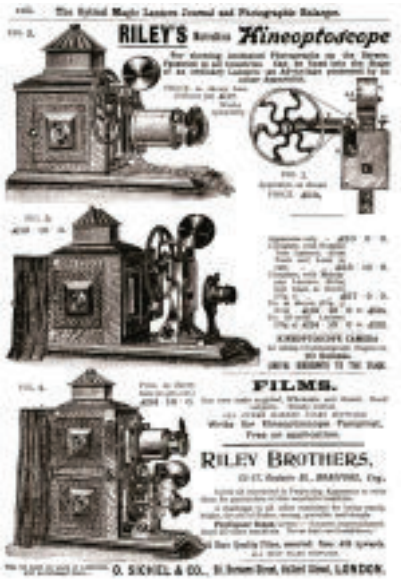
4. Hughes 'Rotagraph' projector for film and slides[18] (above)
5. Hughes 'Moto Photoscope' projector for film and slides (rt)

which carries a large brass disc on a support – although in this case holding a brass lantern lens. The two bases are so arranged that, if the film mechanism was moved sideways out of the beam of light from the lamphouse, it would pull the lantern lens across to take its place, both gliding smoothly on their felt bottoms. The brass disc around the lantern lens prevents the light from spilling out. This type of mechanism came to be called a 'swing-round' and manufacturers adopted it as the standard solution for combining slides and film.[19] The combined machines, and the multi-media shows they enabled, proved a big success, especially after the outbreak of the Boer War which came conveniently at the start of the 1899 lantern season. That seems to be the date of my Hughes mechanism, but it clearly has a slightly different function as the brass disc is not threaded to take a lantern lens. It is connected instead to another solution for incorporating film into lantern shows which Hepworth called 'the biunial lantern method'.[20] In this arrangement, the lens and slide carrier on the bottom stage of a biunial lantern was replaced by a fixed film projector to create a double machine.

6. Slide showing a Riley 1897 'Kineoptoscope' arranged for showing films only (author's collection)

The progression towards this can be seen in the machines offered by Riley Brothers, the Bradford lantern dealers. In September 1896 Riley moved into film exhibition by announcing their 'Kineoptoscope' projector,[21] a remarkably compact device not much thicker than a mechanical lantern slide. They declared that this mechanism could be "fixed into the stage of an ordinary lantern"[22] although admitting that the retaining bolts "may need to be lengthened somewhat".[23] For lanternists who still wanted to show slides they suggested slipping the projector into the top stage of a biunial so the bottom stage could be used "while a fresh film is being fitted."[24] However, it is clear that lanternists were still uncertain how to use film, for Riley went on to produce a range of different permutations of the 'Kineoptoscope'. By the 1897 lantern season they were offering, in addition to the original removable model, not only a version fixed in front of a single lantern body (Fig.6)[25] but also a single lantern with an interchangeable 'Kineoptoscope' and slide lens on brass rails (Fig.7)[26] – and, for £24 10s, a biunial with a fixed 'Kineoptoscope' in place of the bottom slide stage (Fig.8).

7. Riley 'Kineoptoscope' with interchangeable slide lens on a sliding mount



8. Three versions of Riley's 'Kineoptoscope' projector in September 1897[27]

This biunial solution proved popular with some lanternists and, by the 1897 lantern season, Wrench was also offering a biunial version of its 'Cinematograph' projector, priced at £45. As the Wrench catalogue of 1897 explained: "The great advantage in having a Bi-unial Cinematograph is that ordinary lantern slides can be projected on the screen with the top lantern during the short intervals required for changing the films, also the names of the subjects of the films can be projected before the film is run through." In the Wrench version, the biunial even retained its vertical 'rolling curtain', a brass sheet in front of the condenser lenses. Raising or lowering this would produce the effect of a curtain going up as a film started, or coming down just before it ended, avoiding what Hepworth saw as the problem of an abrupt transition between film and slides.[28] With the 'Bi-unial Cinematograph' (Fig.9) it would have been easy to show a static title slide then raise the curtain on the film itself in motion. In March 1899 Hughes advertised his own 'Photo Rotoscope Cinematograph Biunial', at £21 10s.[30] Illustrations suggest that in this design the mounting for the film projector could be moved forwards and backwards, but not replaced with a lantern objective as the entire lower slide stage had been removed (Fig.10).

9. Wrench 'Bi-unial Cinematograph' 1896[29] (author's collection)

But the 'biunial lantern method' posed a very practical problem. By 1897 a successful lanternist would already have invested in at least a biunial lantern for presenting impressive dissolving effects as well as a stock of slides that were best shown on a multiple lantern, plus the oxygen cylinder and other paraphernalia needed for the limelight burners. The 'biunial lantern method' enabled such lanternists to avoid transporting an extra film projector and equipment but they would lose much of the advantage they had gained from investing in a biunial as they would once more be reduced to a single slide lantern without the ability to dissolve.

10. Hughes 'Photo Rotoscope Biunial', 1899[31]

An impressive alternative, for lanternists with deep pockets, was to upgrade to a triunial with a fixed film projector in place of the bottom stage. Wrench offered this option in its 1897 catalogue for a whopping £56 10s, observing that the new arrangement "has a further advantage over the Bi-unial Cinematograph, as dissolving views can be shown with the top and middle lanterns as well as the films in the Cinematograph" (Fig.11).

11. Wrench 1896 Cinematograph attached to a triunial, from 1897 catalogue (author's collection)

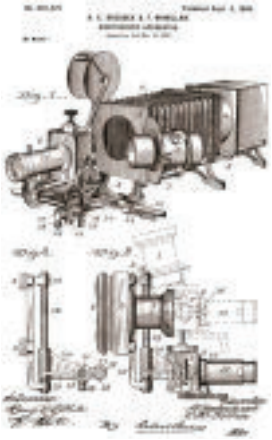
Losing the bottom stage of a triunial was not necessarily a great sacrifice, as there were few slide effects that could not in fact be achieved with the remaining two lantern stages, and the combined instrument remained dramatically impressive.[32] This imposing three-lamphouse solution was also offered to German lanternists by the firm of Liesegang whose 'Dreifacher Apparat Modell 34 mit Kinematograph' seems to have been introduced around 1900 (Fig.12) but was still appearing in the firm's catalogue, with an updated projector mechanism, a decade later.[33]

12. Liesegang's 'Dreifacher Apparat Modell 34 mit Kinematograph', c.1900[34]

But was there a way for a lanternist to show both films and dissolving slide effects without investing in a triunial? Well, they could mount a 'swing-round' on the bottom stage of their biunial lantern. One showman who adopted this method was 39-year-old Alfred Meager, a 'popular lecturer' from south London. In December 1898 Meager gave two 'Grand Dioramatic Entertainments' in Luton consisting of a hundred topographical slides plus 'dioramic effects' and finally a film show.[35] As Meager explained in the *Optical Magic Lantern Journal*, for these multimedia presentations he used a W.C. Hughes 'Docwra' mahogany and brass biunial, equipped for limelight or electric light according to the hall, and at the end of the show: "My cinematograph apparatus slides into front base [*sic*] of lantern, the lower lens tubes being of course previously removed, and the upper portion may be used for showing views, statuary, etc., whilst changing films."[36]

This finally explains the purpose of my peculiar Hughes mechanism, for Meager clearly had something very similar attached to his Hughes biunial. If my mechanism was fitted in front of the bottom stage of a biunial, with the film projector swung to one side and the two-bladed shutter open, both slide stages could be used for dissolving views and other effects. To show a film, the shutter blades could be closed to block the light, the 'lower lens tubes' removed – as Meager described – and the film projector swung across in front of the bottom lamphouse. With this arrangement the remaining upper stage of the biunial could be used to show title and other slides while the films were being changed, if necessary using the 'rolling curtain' to achieve a smooth transition.

This flexible solution was offered by a number of companies, including W. Butcher and Son, who in November 1899 advertised their own 'Bi-unial and Cinematograph complete' for £22 10s, in which: "the Cinematograph portion is made interchangeable, so that the lantern can be used for dissolving views as well as the Cinematograph."[37] There were similar developments in the United States, where on 16 March 1899 Alvah C. Roebuck and Frank McMillan submitted a US patent for "a combination kinetoscopic apparatus and stereopticon ... so arranged as to be readily interchangeable in order that in giving a public exhibition an ordinary lantern-slide can be displayed during the interval in which the change ... from one set of moving pictures to another is being made" (Fig.13).[38]



13. Alvah C. Roebuck and Frank McMillan's 1899 US Patent

14. A double-page opening of the 1899 'Optigraph' catalogue, showing slide and film combinations[40]

In September 1899 the two men made a similar application in the UK so that the equipment was ready for the new lantern season.[39] The 35-year-old Roebuck was head of the phonograph and magic lantern section of the giant mail-order firm of Sears, Roebuck and Company, which marketed its projector as the 'Optigraph' (Fig.14). In this combined version, film could be shown by swinging the lantern objective out of the light then sliding the 'Optigraph' across on a bar. "The operator can show dissolving Stereopticon views and change to motion pictures within two seconds", declared the 1900 catalogue, making it "Especially adapted to a combination of illustrated song or lecture work and Motion Pictures."[41]

15. The Hughes 'Rotagraph' projector in use with a biunial

My unusual piece of equipment thus dates from a brief moment in the history of film and lantern presentations when for a few years the two media shared the same technology and audience. It is a Hughes 'Rotagraph' projector, designed for lanternists who wished to combine dissolving slides with projected film (Fig.15). It was probably produced for the 1899 season when audiences may have regarded film as a necessary addition to any high-class lantern show.

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